WTCI-663-P

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PORT AUTHORITY OF NY & NJ
OFFICE OF ENGINEER OF DESIGN
INFRASTRUCTURE

M E M O R A N D U M

TO: Robert J. Linn, Deputy Director for Physical Facilities, WTD
FROM: Lester S. Feld
DATE: January 15, 1987

RECEIVED
NOTED
REFERRED TO

SUBJECT: THE WORLD TRADE CENTER - TOWERS & PLAZA BUILDINGS FIRE RATING PER NYC BUILDING CODE REVISION EFFECTIVE 12-6-68

REFERENCE:
(1) - Memo - M. Levy to File - dated 4-20-65
(2) - Letter - L. Robertson (WSHJ) to M. Levy - dated 4-26-65
(3) - Letter - M. Levy to M. Gerstman (TRCC) - dated 5-14-69 ✓
(4) - Office Memo - W. Bracco (TRCC) to J. Endler (TRCC) - dated 5-26-69 ✓
(5) - UL Fire Test Report from T. P. Feit - dated 7-26-69
(6) - Letter - A. F. Abbasi (UL) to T. P. Feit (Zonolite) - dated 3-26-70
(7) - Buckslip - V. Dovletian to D. Bais - dated 1-9-87
(8) - Page 4 - Item 1C of Issue A entitled "Office Space Design Guide"

COPY TO: D. Bais, J. Carlock, A. Cracchiolo, V. Dovletian, P. Martinez (ERS) D. Montalbano, A. Preschle, J. Pugh (LERA), L. Robertson (LERA) A. Vaccaro - All w/Reference 1 - 8 attached.

1/28 Review & brief me. Tony C.

COPY TO	
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1. On January 13, 1987 I contacted Richard Roth, Jr. (ER&S) regarding the subject fire ratings, normally established by the Architect. Mr. Roth referred me to Phil Martinez for the required information.

2. Phil's recollection (since ER&S had given all their WTC tracings to our Planning Division) was as follows:

   A. The egress requirement and fire ratings used to design the WTC Towers & Plaza Buildings were in accordance with the provisions of the planned NYC Building Code revisions effective December 8, 1968. Normally fire ratings are not shown on the Architectural Working Drawings or in the General Notes. The fire ratings are given only on the application forms filed with the plans for NYC Building Department Approval. Since the Port Authority is not subject to the NYC Building Code Requirements, no plans or forms were filed.

   B. For office buildings there is no economic advantage in using Class 1A Construction, and ER&S used Class 1B Construction for the WTC Towers and Plaza Buildings which are Occupancy Group "E" (Business) with a fire index of 2 hours. As such, columns must have 3 hour fire rating and floor construction with a 2 hour rating.

3. Please note that Reference #3 by Mal Levy was concurred in by W. Bracco (TRCC) in Reference #4, with regard to Class 1-B Construction cited by Mr. Martinez. In addition, References #1 & #2 (written in 1965) are superseded by References #3 & #4 (written in 1969).

4. For your information and use I have also attached References #5 & #6 on the UL Test of floor construction showing a 3 hour rating. Please note that the UL Test is based on the use of 1½" thick Monokote Fireproofing on joists and ½" thick Monokote on steel deck. Actually - Cafco - Type "D" spray-on was used at the WTC on joists only, in lieu of Monokote. In addition, the UL Test used stone-concrete slab with a thickness of 2 3/4" over top of corrugated deck, as compared to the 4" lightweight concrete slab used at the WTC.

5. With regard to Reference #7, no joists were used in the floor construction of 3 WTC, 4 WTC, or 5 WTC - rolled beam are used in all Plaza Buildings. Mr. Martinez (ER&S) Mal Levy (Reference #3) & TRCC (Reference #4) all concur that the Plaza Buildings are Class 1B Construction.

6. In addition, Issue "A" of the "Tower Office Space Design Guide" prepared by the WTC Planning and Construction Division (with Errata Sheet #1 to Issue A - dated March 23, 1970) - Page 4 - Item C1 (attached as Reference #8) verifies that the towers are class 1B Construction.

Lester S. Feld
Chief Structural Engineer
World Trade Department